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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/774,827	01/29/2001	Manfred Kilb	1540-00	2860

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IP Department
Schnader Harrison Segal & Lewis
36th Floor
1600 Market Street
Philadelphia, PA 19103

EXAMINER
CREPEAU, JONATHAN

ART UNIT	PAPER NUMBER
1746	6

DATE MAILED: 02/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

AS6

Office Action Summary	Application No.	Applicant(s)	
	09/774,827	KILB ET AL.	
	Examiner	Art Unit	
	Jonathan S. Crepeau	1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 November 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *10* is/are allowed.

6)☒ Claim(s) *1-9,11 and 12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Response to Amendment

1. This Office action addresses claims 1-12. Claim 10 is allowed. Applicant's arguments regarding the Takahashi reference are persuasive in overcoming the §103 rejection of claims 1-9, 11 and 12 set forth in the previous Office action. However, claims 1-9, 11, and 12 are newly rejected under §103. Accordingly, since the new rejections were not necessitated by amendment, this action is non-final.

Claim Rejections - 35 USC § 103

2. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 658949 in view of DE 19838121.

Regarding claim 1, EP 658949 teaches a gastight nickel-metal hydride button cell storage battery in the abstract. The battery comprises positive and negative electrodes (4, 6) separated by a separator. The positive electrode and negative electrode both have support and conductor framework in the form of a porous metal foam or felt (see page 4, sixth paragraph of translation).

The reference does not expressly teach that the positive electrode has a region adjacent the cell case which is free of active material, as recited in claim 1.

DE 19838121 is directed nickel-metal hydride storage batteries (see abstract). The batteries comprise fibrous electrodes which are impregnated with an active material. The electrodes are pretreated so as to remove an adherent coating of active material from one side

thereof, thus exposing the conductive framework fiber. The exposed sides are then contacted with cell partitions during the formation of the battery.

Therefore, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the artisan would be motivated by the disclosure of DE 19838121 to modify the positive electrode substrate of the EP reference such that the portion in contact with the can is free of active material. In the abstract, DE 19838121 teaches that such a removal of active material results in "improved contact between the electrode and the partition during cell operation" and that "the accumulator exhibits lower electrical junction resistance than that obtained in conventional bipolar cells." The artisan would realize that these teachings would be applicable to the cell of the EP reference because the EP reference is also concerned with an impregnated fibrous electrode in direct contact with a metallic member (i.e., the can). Therefore, the artisan would be motivated to modify the electrode(s) of the EP reference so as to leave a portion of the substrate contacting the can free of active material, in order to reduce the contact resistance between the electrode and the can. Additionally, the artisan would be motivated to leave between 5 and 15% (e.g., about 10%) of the electrode thickness free of active material, as recited in claims 2 and 3. The amount of active material is a parameter that is recognized as directly affecting the capacity of the cell. Therefore, an artisan would want to remove only a small amount so as to not adversely impact the cell capacity. Accordingly, the claimed ranges are not considered to distinguish over the references.

3. Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 658949 in view of DE 19838121 as applied to claims 1-3 above, and further in view of JP 61-216269.

The EP reference does not expressly teach that both the positive and negative electrodes have a central cut-out.

JP 61-216269 is directed to an enclosed button type battery comprising central cut-outs in the positive and negative electrodes (see abstract; Figure 1).

Therefore, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the artisan would be motivated by the disclosure of the Japanese reference to use such a cut-out in the positive and negative electrodes of the EP reference. In the abstract, the Japanese reference teaches that a constant internal pressure is maintained and that the battery is tolerant to overcharging. Accordingly, the artisan would be motivated to use cut-out portions in the positive and negative electrodes of the EP reference. Additionally, the artisan would be motivated to use a cut-out having a volume of between 5 and 20% (e.g., about 10%) of each electrode volume as recited in claims 4-6. The size of the cut-out is proportional to amount of active material in the cell, which as noted above, is a parameter that directly affects the capacity of the cell. Therefore, an artisan would want to remove only a small amount so as to not adversely impact the cell capacity. Accordingly, the claimed ranges are not considered to distinguish over the references.

4. Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 658949 in view of DE 19838121 as applied to claims 1-3 above, and further in view of Hara et al (U.S. Patent 4,587,180).

The EP reference does not expressly teach that the negative electrode has a recess on the side facing the cell cover.

Hara et al. is directed to an enclosed button type battery comprising a recess in the surface of the negative electrode (6, 26) facing the cell cover (see Figures 1 and 3).

Therefore, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the artisan would be motivated by the disclosure of Hara et al. to use such a recess in the negative electrode of the EP reference. In column 1, line 44, Hara et al. teach that their invention is concerned with "preventing the welding of a connecting tab from exerting a thermal effect upon the negative electrode of the cell." Accordingly, the artisan would be motivated to use a recess in the negative electrode of the EP reference. Additionally, the artisan would be motivated use a recess having a thickness of between 5 and 15% (e.g., about 10%) of the negative electrode, as recited in claims 8 and 9. The size of the recess is proportional to amount of negative active material in the cell, which as noted above, is a parameter that directly affects the capacity of the cell. Therefore, an artisan would want to remove only a small amount so as to not adversely impact the cell capacity. Accordingly, the claimed ranges are not considered to distinguish over the references.

5. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 658949 in view of DE 19838121 as applied to claims 1-3 above, and further in view of Kohler et al (U.S. Patent 5,800,947) and Sugalski (U.S. Patent 4,529,675).

The EP reference does not expressly teach that a substantially flat spring having a plurality of flat spring elements bent out of a base material on one side thereof and a plurality of ribs extending outwardly on the other side thereof is located between the negative electrode and the cell cover.

Kohler et al. is directed to an enclosed button type battery comprising a spring element (6) located between the negative electrode (5) and the cell cover (4) (see Figure 1).

Sugalski is directed to cylindrical battery comprising a substantially flat current collector (32) having a plurality of flat spring elements (34) bent out of a base material on one side thereof and a plurality of ribs (33) extending outwardly on the other side thereof (see Figs. 2 and 3).

Therefore, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the artisan would first be motivated by the disclosure of Kohler et al. to use a spring member between the negative electrode and cell cover of the EP reference. In column 1, line 15, Kohler et al. teach that such a spring produces an "intimate contact" between the electrodes and cell casing. Accordingly, the artisan would be motivated spring member between the negative electrode and cell cover of the EP reference.

Further, the artisan would be motivated to use the spring structure disclosed by Sugalski as the spring member in the modified battery of the EP reference. In column 2, line 43, Sugalski teaches that this configuration "reliably and invariably establish[es] a sufficient electrical path

between the cell electrode and the external terminal of the cell even under conditions associated with high rate manufacturing assembly production lines and under conditions wherein the cell may be subjected to severe impact or vibration." Accordingly, the artisan would be motivated to use the flat-spring/rib structure of Sugalski at a location between the negative electrode and cell cover of the battery of the EP reference.

Allowable Subject Matter

6. Claim 10 is allowed.

7. The following is a statement of reasons for the indication of allowable subject matter:

The reasons for allowance of claim 10 were given in the previous Office action and remain applicable herein.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Crepeau whose telephone number is (703) 305-0051. The examiner can normally be reached Monday-Friday from 9:30 AM - 6:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski, can be reached at (703) 308-4333. The phone number for the organization where this application or proceeding is assigned is (703) 305-5900. Additionally, documents may be faxed to (703) 305-5408 or (703) 305-5433.

Any inquiry of general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Patrick Ryan
Supervisory Patent Examiner
Technology Center 1700

JSC

January 23, 2003